

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated into and form a part of the disclosure,

Figure 1A shows a composite material before the processing steps disclosed herein;

Figure 1B illustrates a light emission spectrum of the pre-processed composite material of Figure 1A on a linear scale;

Figure 2 shows the composite material of Figure 1A being irradiated; and

Figure 3A shows a post-processed composite material after the irradiation process;

Figure 3B illustrates a light emission spectrum of the post-processed composite material of Figure 3A on a linear scale;

Figure 4 illustrates a flow diagram of an iterative processing method of the present disclosure;

Figure 5 discloses a white light source for general lighting applications using the post-process composite material;

Figure 6 illustrates a liquid crystal display (LCD) using the post-process composite material as the white emitting back light;

Figure 7 illustrates a light emitting diode (LED) using the post-process composite material having a various colors; and

Figure 8 illustrates a pixel of a full color electroluminescent display composed of a plurality of sub-pixels each including a post-processed composite.

DETAILED DESCRIPTION

Typically white light emitting devices do so through contributions of several spectral components, usually red, green and blue color light.

Nanocrystals embedded in a matrix to form a composite material may be used in these light emitting devices. Nanocrystals are defined as single crystal particles having average dimensions approximately in the range of 1 to 20 nanometers

(nm), and typically approximately 2 to 6 nm, but whose dimensions are ultimately determined by the nanocrystal material and dimensions required to effect quantum confinement. Quantum confinement is the shifting of energy levels to higher energies as the particle size decreases. Due to their small size, nanocrystals confine carriers (electrons and holes) three-dimensionally so that the effect of the quantum confinement of carriers may be obtained. The use of the terms "hole" and "holes" herein is intended to refer to vacant electron energy states, typically near the top of an energy band, in a solid. Quantum

confinement causes the energy of the light emitted to increase as the size of the nanocrystal decreases, or equivalently, quantum confinement causes the wavelength of the light emitted to decrease as the size of the nanocrystal

decreases. The exact size of the nanocrystals is dictated by the color of light to be generated. Blue light, for example, requires smaller nanocrystals than red light.

A composite containing the nanocrystals may then be energized by several